Public Engagement in Coastal Adaption

What is the best way for the Christchurch City Council to engage the Christchurch community when planning for and implementing adaption for sea level rise?

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Abstract

The main aim of this research project was to establish methods for engaging the community in the best possible way when planning for and implementing adaptation to sea level rise. A focus group meeting involving representatives from various stakeholder groups was held to discuss the various methods and techniques essential for an effective community engagement process. An online survey was also prepared in order to test the outcomes of the focus group with the wider public. Key outcomes of these processes included the need for easily digestible information on the topics, commitment from the council to engagement, small scale meetings, and the inclusion of a wide variety of communities/groups of people. All of these measures need to be implemented if the process of community engagement is to be successful.

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Introduction

Christchurch, as a coastal city is very vulnerable to a multitude of natural hazards that can occur from many different origins. This has been demonstrated by the recent major earthquakes that hit the Canterbury region in 2010 and 2011, causing extreme damage to many areas of the city. This resulted in many areas being zoned as 'red' – meaning that the land is unsuitable for residential occupation for a prolonged period of time (Canterbury Earthquake Recovery Authority (CERA), 2011). A significant proportion of these red zoned houses were located either along the Avon River or on the Estuary side of the New Brighton Spit, which is an area that is especially vulnerable to extreme on-set hazards such as tsunami, or long term hazards such as sea level rise.

The benefit of a long term hazard such as sea level rise is that to some degree, it can be predicted. This provides the opportunity to plan for the adaption of our built environment and the way in which we use the areas that may be affected by a change in the natural processes of the area. As adaption planning may require some large scale and expensive actions not only for the regional authorities, but also for the residents of the affected areas, involving the community in the process of planning for this adaption is crucial to ensure that the process will be as successful as possible, with full implementation and support from the local citizens involved.

This report is focussing on establishing the best way for the Christchurch City Council to engage the community when planning for adaption to sea level rise, with a particular focus on the New Brighton / South Shore location. Involving the community from the very start of this kind of process has been determined as an important factor in the successful implementation of a large scale adaption plan. We chose to follow Twyfords five step 'collaborative governance' approach (Twyfords, 2011), with a main focus on the third step, co-designing the process of engagement with the community. This was done through discussions with resident's association representatives, other community members, and specialists in the area of community engagement.

Background

Sea Level Rise

With the changes in the global climate, and the warming of the ocean, the global mean sea level is expected to rise significantly in the next 100 years. With the release of the Climate Change 2013, The Physical Science Basis contribution to the Fifth Assessment report by the International Panel on Climate Change, there have been new official estimates for the predictions of global sea level rise. They predict that the global mean sea level could rise by up to 0.55m in the best case scenario, to 0.98m in the worst case scenario by 2100 (Church et al., 2013, p. 1180). This is a rise in global mean sea level, meaning an increase in the amount of water in the oceans around the globe. The rise in relative sea level, which is how the sea level changes relative to a particular land mass (e.g. The South Island), takes into account the changes in the rise and fall of the land masses, and can be much harder to predict. In New Zealand however, the observed changes in relative sea level have been occurring at a relative rate to that of the global mean, meaning that the global means can be a good predictor of the effects that will be seen in New Zealand (Hannah & Bell, 2012). Along with a change in global sea levels, climate change is expected to increase the frequency and intensity of extreme intensity precipitation and storm events (Collins et al., 2013). This has a particular relevance for Christchurch considering the impact of recent extreme precipitation events causing extensive flooding in several areas of the city, where the damage was escalated due to the changes in the land elevation due to the recent seismic activity. Some of the areas that have been heavily impacted in these events will likely be the areas that will be most affected by a rise in sea level.

Tonkin and Taylor Report

In 2013, environmental consulting company Tonkin and Taylor produced a report for the Christchurch City Council regarding the effects of sea level rise for Christchurch City (Tonkin & Tayor, 2013). In this report, they estimated the areas that will be affected by a rise in mean sea level (MSL) of 1m, and the areas that will be affected by a 1% AEP inundation event. Figure 2

shows this for the areas of the city located around the estuary. The light blue zone represents the areas that will be impacted by shoreline retreat due to a rise in MSL, and the dark blue shows the area that will be impacted during a 1% AEP inundation event. Figure 3 shows the same for Sumner, but due to the presence of the sea wall, there will be little to no inundation from the rise in MSL at this site.

They calculated a shoreline retreat of up to 100m landward at various sites along the New Brighton beach and spit (Tonkin & Tayor, 2013, p. 42). Due to the close proximity of developed areas (including residential, recreational and business areas), this shoreline retreat will have an extreme adverse effect on many people living or working in the area. They also predict a retreat of up to 560m at South New Brighton and 370m at South Shore from the estuary side, increasing the effect on the local population even further (Tonkin & Tayor, 2013).

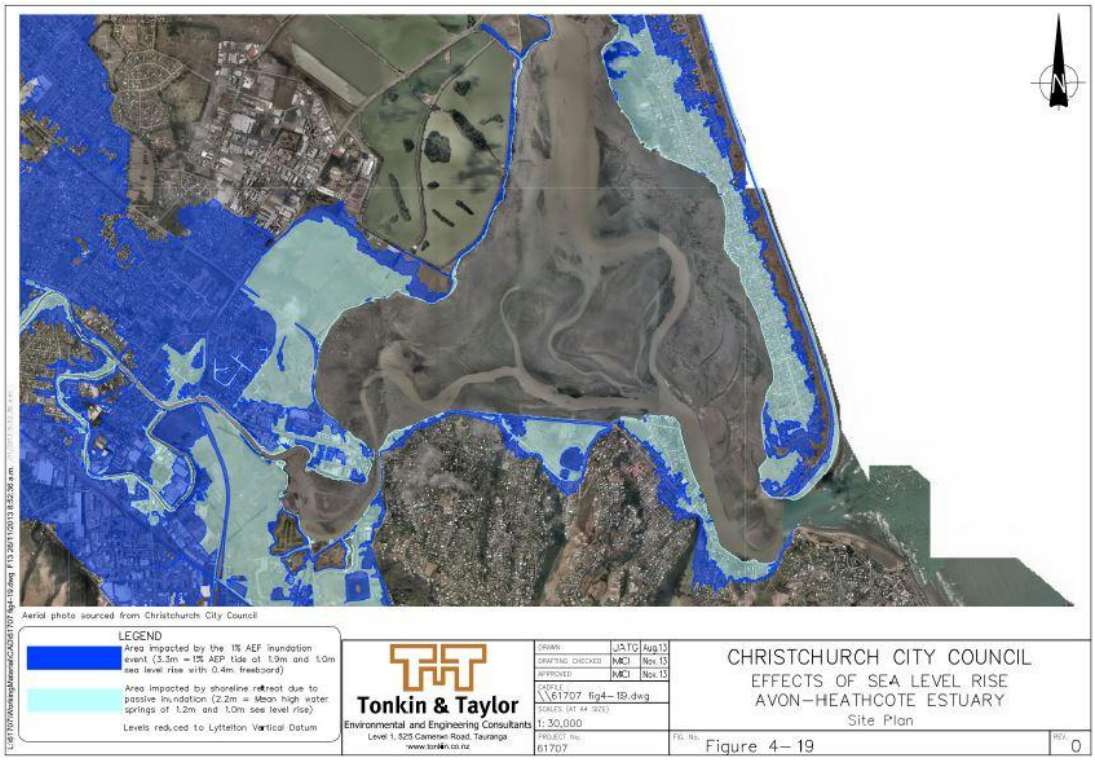

Figure 1: Projected inundation due to sea level rise and 1% AEP inundation event around Avon-Heathcote Estuary, Christchurch.

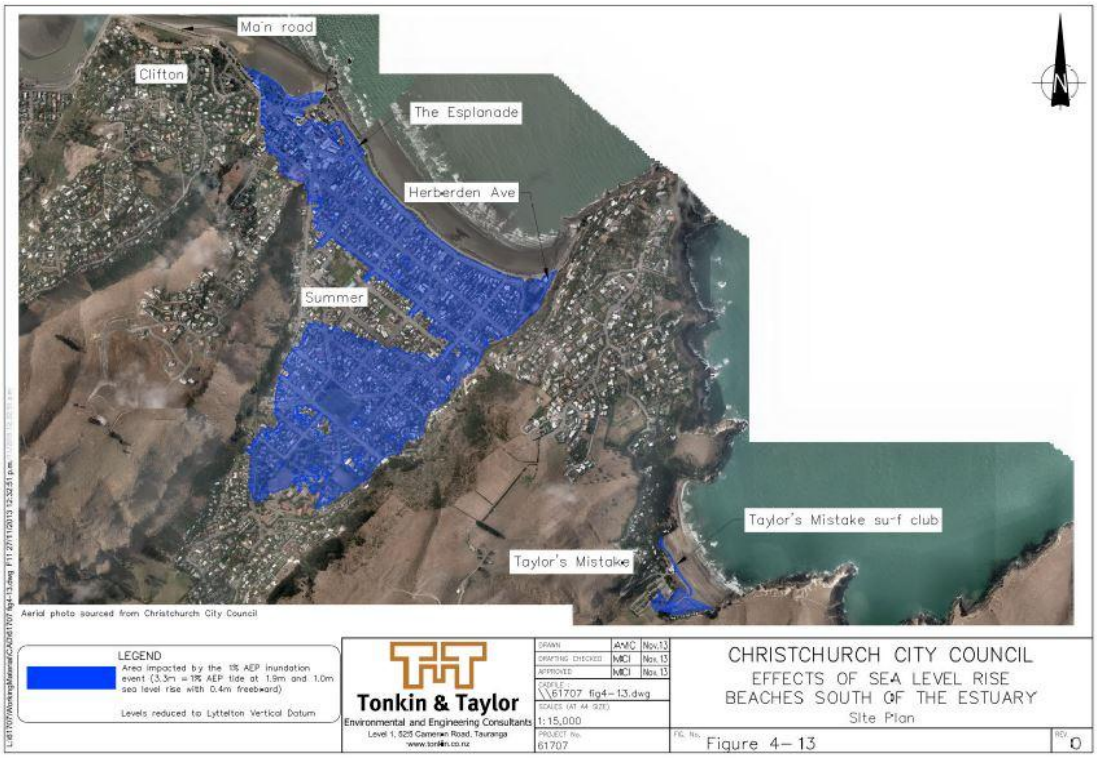

Figure 2: Projected inundation due to sea level rise and 1% AEP inundation event at Sumner, Christchurch.

Options for responding to sea level change

One common option for dealing with a rise in sea level is to construct hard structures such as sea walls and groynes to halt the erosion. While this can be a short term fix to a small scale problem, there are many adverse effects to these, such as the changes to the beach profile, local sediment movement, and scouring of sediment on the down drift side of these structures. Retreating from the area is a method that would preserve the natural features of the effected environment, but will come at a significant cost to those that have to move, as well as the local or national government who may have to compensate the people moving away from the area. Accommodating involves processes which include modifying the way that the land and buildings are used or constructed in the future, the modification of existing buildings and structures, and the protection of threatened ecosystems. A combination of the three options presented above would be the best option for dealing with the potential changes to the many areas around the coastal regions of Christchurch City.

Particularly effected groups and communities

The predicted changes in the local environment will have a drastic effect on many people living in these affected areas, as well as the many people who use these areas for recreational purposes. Engaging with people from all of the possibly effected groups is important for ensuring that the best options for adaption to the changes are all considered, and that all of the effected parties have their opinions and concerns heard, as well as having an input into the final outcome.

Practices and Approaches used elsewhere

As climate change is a long process, and its effects will be occurring over a long time period, the methods of engaging the community around the specific issues may be different to normal community engagement techniques. This is because many people will not be aware of the potential negative effects that will affect them in the long term. Raising awareness of the potential effects and having people commit to a long term process are integral parts of engaging the community regarding climate change, and may prove to be quite difficult.

IAP2 Spectrum

The International association for public participation (IAP2) have produced a spectrum showing the differing levels of public participation, seen in Figure 4 (International Association for Public Participation, 2007). At the lower end of the spectrum is inform, this is simply telling the public about the policy or actions that are going to be taken. This involves no community engagement during the decision making process, and can lead to poor decisions being made. Empower is at the opposite end of the spectrum, and means that decision making process will be entirely up to the community that is going to be effected by the outcomes of the decisions made.

Figure 3: IAP2 Spectrum of Public Participation.

Case Study: Whitianga

From 2009-2010, a series of practices were used to engage with the community of Whitianga, located on the Coromandel Peninsula about adapting to the potential changes to the local coastline due to climate change (Rouse et al., 2011). This involved a climate change open day, and a community workshop. The open day was an opportunity for local residents and holiday makers to gather knowledge of sea level rise and its effects, as well as a chance to speak with experts and specialists about specific issues such as habitat change, erosion and coastal inundation These potential effects were displayed on large (size A0) maps, which provided a way for the public to understand the effects of the impact of climate change on the area. These maps were accompanied by a small number of experts on the specific issues, as well as experts in the field of climate change. Following this open day a workshop was held, to promote further, more detailed discussion around the issues that were brought up at the open day, and how to protect the

things that the community values. The people attending this workshop were split into the following groups to focus on the different impacts of climate change (Rouse et al., 2011);

- Recreation
- Infra-structure and community
- Ecology, biodiversity, and aesthetics
- Private property and Businesses

The participants at the workshop gave overall positive feedback and appreciated the adequate amounts of information provided, and the opportunity to talk with the experts and the council together on the issues and concerns that they may have had.

Case Study: Lake Macquarie

The City of Lake Macquarie is an area located south of Newcastle, NSW Australia, and is located around the edges of a barrier estuary. There are over 10,000 properties located around the edge of the lake, below 3m above the mean sea level (Stevens, Dufty, Waters, & Giles, 2010). The Lake Macquarie City Council (LMCC) conducted two methods of community engagement regarding sea level rise adaption, a set of workshops and community surveys, and an approach based on Twyfords' Collaborative Governance Model (Figure 5). This is based in five steps, starting with the council committing to collaboration with the public. This is followed by co-defining the dilemma to be solved, and co-designing the process of engagement with the community, and finally, co-creating the solution and co-delivering the actions (Twyfords, 2011). Following this process ensures that the community can take ownership of the decisions that are made, which will help to ensure that the adaption plan is a success.

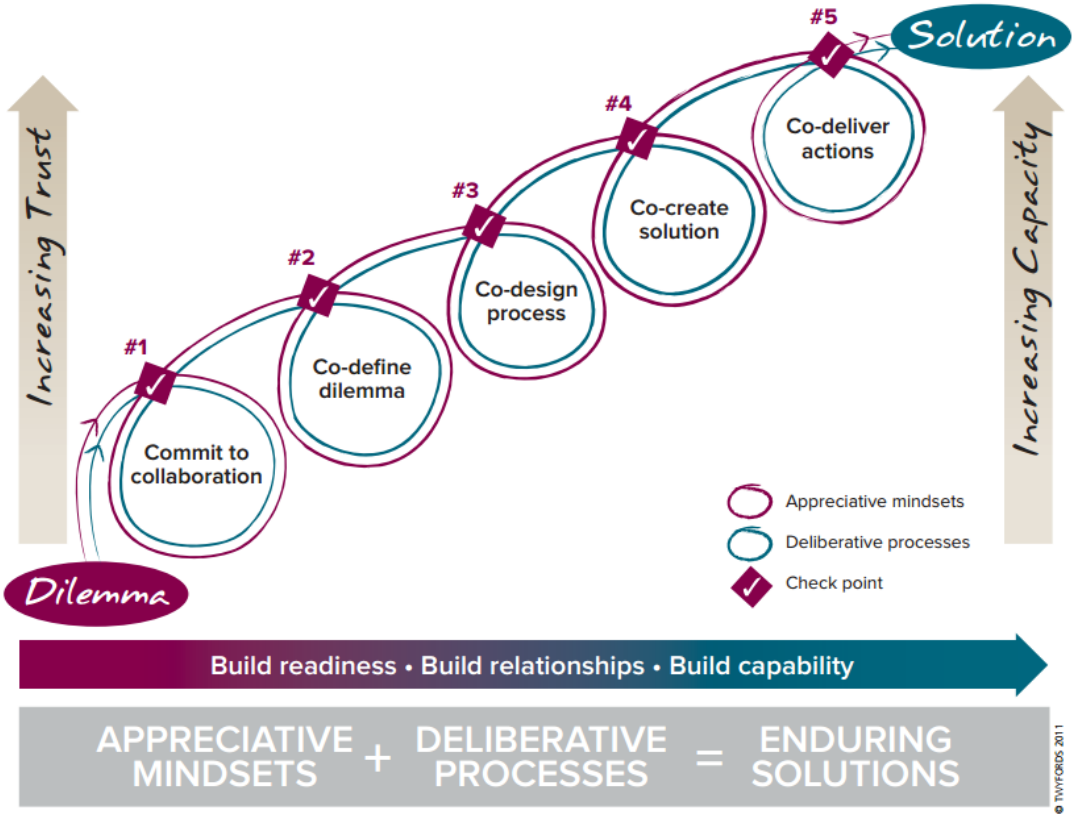

Figure 4: Twyfords' five step Collaborative Governance Model.

We have chosen to follow the third step of this process for establishing the best way for the Christchurch City Council to engage with the Christchurch Community when planning for and implementing adaption to sea level rise.

Focus group meeting

We held a focus group meeting on the 15th of May at the Southshore Residents Association community house. Representatives from the Southshore Residents Association, Avon-Otakaro Network, Surf Lifesaving NZ, National Institute of Water and Atmospheric Research (NIWA) and the Christchurch City Council (CCC) were present. We also invited representatives from the Avon-Heathcote Estuary Ihutai Trust, New Brighton Business and Landowners Association and New Brighton Residents Association who unfortunately couldn't attend. The main purpose of this focus group was to find their opinions on:

- How to best engage the community when planning for and implementing adaption for sea level rise?
- How to engage the wider public?
- Examples of ways to engage the community.

The outcomes of this focus group meeting can be grouped into several categories, including concerns that they had which could act as hindrances for community engagement, Information needs, principles to follow and processes to use.

Concerns

One of the concerns that people had regarding this issue was that there is a relatively low proportion of participation levels for engagement and participation with the residents association. The participants felt that the rate of response for the community meetings meant to discuss serious issues would not be very high. Good participation is always essential for the community engagement activity to be successful. A lack of interest amongst the public can result in low participation, thereby increasing the difficulty of a successful community engagement process.

There was also a common opinion that major agencies like the CERA, CCC and insurance companies were not ready to work and interact in small, intimate meetings with the public. This may not be helpful if the personal opinions of each individual need to be considered. It also leads

to feelings of disconnect between the community and the agencies that are meant to be looking out for them and helping them make informed decisions.

The media has to play a major role in providing the necessary information to the people, however the information provided through media is not always seen as informative. People perceive the facts as delivered in a sensational rather than in an informative way (as it should be). Information delivered in this fashion will make it harder for the public to clearly understand the issue which may be one of the main reasons for the failure of a community engagement activity.

Some public meetings that are planned have very large crowds. This may make it difficult to understand the concerns of everyone in the community. As the main purpose of community engagement is to address the concerns of as many people as possible, having public meetings that target large crowds may turn out to be only useful as an information session, and may not serve the purpose completely. The number of meetings or gatherings has to be increased with each targeting a smaller group of participants instead of holding a single meeting for the entire community which may not yield the desired results.

Information needs

The availability of information regarding sea level rise and its effects that is presented in a simplified and understandable format is a necessary aspect of successful community engagement. The data that is available can be highly technical and not easily understood by many people. This information has to be simple enough to give a clear picture of the issue to the community, which may increase public participation.

Generally, the Information and predictions for sea level rise is presented in 100 year blocks i.e. the consequences that may occur over a period of 100 years. If this is expressed in blocks of smaller time periods (e.g. 20 year time periods), it would make it easier for people to understand how it will affect them. This means that they will be able to react accordingly to the immediate consequences that they may need to face.

The people involved need to have a clear idea about the time that will be needed for the various tasks to be completed, and the time frames involved for the entire process. This is especially relevant in the Christchurch context as many houses have been damaged due to the earthquakes and people are either in the rebuilding process or will be considering the options for their future in the areas they currently live in. If they are informed about the time frames of the adaptation planning events, they would be able to make a decision about how they may choose to rebuild their home. They may also choose to postpone their rebuild because of the information that is presented.

Principles to follow

There are many basic principles that need to be followed for a successful community engagement activity.

The local community boards need to have stronger links to the people living in their communities and their residents associations. The concerned residents associations also play a major role in bringing the people together and empowering them to make the community engagement successful. Proper planning of engagement activities with the aim of bringing in a large amount of people can serve this purpose. Empowerment of people should occur at a very basic level, and interaction between neighbours and people of the same street has to be encouraged.

There is a feeling among some people that the council pays less attention to the concerns of the public than they should be doing. This perception needs to be averted if community engagement is to be successful. Higher levels of communication between the council and the communities of Christchurch should be encouraged.

During the process of engagement, and following the final decisions, the council needs to offer a way of supporting the effected residents and helping them deal with the potential outcomes. This is because although some of the outcomes of this process may be the best option for the majority of the Christchurch community, there will most likely be people who come out worse off. These

people may have been a part of the engagement process, or may have chosen not to be involved. Either way, the council needs to offer support to these people to help them deal with the decisions that have been made.

Processes to use

The participants had also come up with some possible processes that can be followed in Christchurch to engage the communities.

Small public meetings will be helpful for areas that are likely to be heavily affected by sea level rise, as they can be more intimate and people will feel more comfortable and be more likely to voice their opinions or concerns. Having them in places where people generally gather (e.g. churches), may prove handy as people will not have to go too far out of their way to attend these meetings.

Drop in information centres would be a popular option for educating the public. People generally understand models and maps more effectively than large amounts of textual data. Thus, it would be better to have drop in centres with models, maps, time tunnels etc. to help the people clearly understand the seriousness of the issue and the possible effects on their local area. A portable information center that can be transported around Christchurch would be a good way of raising awareness and distributing information to people all around the city. At these drop in centres an interactive or hard copy map where people can place a marker at a particular spot, saying what they do there and what they enjoy about the area could be a useful way of finding the things that people value about the area.

Interaction between various groups such as resident, business, recreational and cultural groups has to be encouraged. This will enable the people understand each other's concerns and hopefully consider these concerns when suggesting options for the adaption planning.

Online Survey

Following the results from the focus group, we made a short online survey as a way of testing the outcomes that we got from the focus group with the wider public. Unfortunately, we only got 15 responses to this, but they did come from a variety people who rented and owned the homes that they live in, and fitting into age brackets ranging from 18-24 to 55-64. The questions were based around what types of events that they feel would lead to successful community engagement, what kinds of events they would participate in, and how the wider public could be engaged. This survey has been attached in Appendix 1.

As predicted, all respondents stated that education and easily accessible and digestible information on sea level rise is crucial for successful community engagement. They also felt that improved relationships between the different communities and organisations (e.g. CCC) were also an essential factor. A significant proportion of home owners also felt that smaller meetings would be beneficial, where this was not a popular option among renters.

Online information sources were the most popular option regarding the most effective ways to educate the public about sea level rise, with drop in centres and presentations/lectures being other popular options.

When asked what kinds of events the respondents would actually participate in, online surveys proved to be a popular result among all participants, especially renters who were also typically a younger age. However there may be a response bias, as these questions were asked through an online survey. Options popular amongst home owners were small public meetings, and meetings based around particular interests, however large public meetings were not as popular of an option.

Suggestions for raising awareness and engaging the wider community of Christchurch included door knocking surveys around the more vulnerable areas such as South Shore, using all methods of communication as possible - especially social media, inclusion of advertising and awareness brochures with rates newsletters, advertising through school communities, and using different

interest groups to raise awareness (e.g. sports, hobbies, recreation, churches and cultural groups). Focussing on the destruction of the amenities that people value about the area will be a way of engaging their interest in the effects of a rise in sea level, and will therefore increase the chances of higher participation in the adaption planning events.

The participants also felt that the factors and networks that are necessary for successful community engagement (communication between residents, the presence of representative groups, council – community interaction) are not available at the necessary scale. This may be due to the fact that many people are still recovering from the effects of the earthquakes, and the continuation of dramas and stress related to this is stopping people from engaging with their local communities. There is also another view that the council has already made many of the decisions before they engage with the community, and that community engagement exercises are not an important concern when regarding planning for the future of Christchurch.

There was only a small amount of responses to this survey, which suggests that is not a fair representation of the Christchurch community. A better distribution of this or a similar survey through the council or other representative groups (which we tried to do) and a larger running time could yield a larger participant size, and therefore a more representative amount of respondents.

Overall recommendations

From the outcomes of the focus group and the online survey, we can make some overall recommendations regarding the best ways for the Christchurch City Council to engage with the community regarding adaption panning for sea level rise.

Council needs to be committed to collaboration

The council has to play a major role in encouraging collaborative efforts. It has to interact closely with the people, paving the way for effective community engagement. By doing this, it will also serve as an example for the other agencies involved in this or similar processes.

As well as being committed to the process, the Council also needs to assure the public that they will offer them support during the process of making these decisions, as well as dealing with the results of the collaborative process.

Education on the topic

Educating the people on the topic of sea level rise and the major issues involved is the first step of successful community engagement. The very purpose of community engagement fails if the people are not aware of the exact problem. Thus, proper education is needed to increase the awareness of the issue among the public. Drop in centres with 3d models and maps may serve as useful tools to educate the community, as this kind of information is easier to understand and relate to than textual data. Easily accessible online information and informal sessions with experts may also serve this purpose.

Smaller scale meetings

Multiple public meetings and workshops targeting a smaller number of participants have to be organised instead of a single meeting for the entire community. Meetings with large crowds function best as an information session, as they can be intimidating for expression of personal opinions. Small scale meetings would pave the way for addressing the concerns of a majority of the community, as well as giving people the chance to speak up about issues that may affect them.

Involve various communities

All of the various communities around Christchurch need to be involved in this process. This includes, but is not limited to business, resident, sporting, recreation and cultural communities that the people of Christchurch may be part of.

Interaction between these various groups and communities should be encouraged so that the people get to know about the concerns of their fellow citizens. If everyone is aware of the other groups of people that will be affected by the rise in sea level and the possible adaption options, then they will be able to make more informed decisions and be aware of how the options that they suggest may affect the wider communities.

A strong sense of interaction between the council (and other organisations) and the local communities is important to establish, as this means that people will feel connected will stop feelings of isolation, and that their opinions don't matter.

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Appendix: Online survey questions

Do you own or rent the house you are currently residing in?

- Own
- Rent
- Other

Which age bracket do you fit in to?

- Under 18
- 18 – 24
- 25 – 34
- 35 – 44
- 45 – 54
- 55 – 64
- 65 or older

1. **Where would you rate you knowledge of sea level rise and the associated effects on a scale** of 1-10?
- Scale - 1 (very little/ no knowledge) – 10 (Very knowledgeable)

2. **What factors increase the chances of successful community involvement in planning for** adaption?
- Accessibility of information on the topic
- Fewer meetings, but longer and more people
- More frequent, smaller scale meetings
- Better relationships between community and organisations
- Online Forums
- Other

3. **What do you think would be the most effective ways to educate the public around sea level rise and the effects on your local area?**
- Large meetings / public lectures
- Online information/web pages
- Drop in centres
- Online conversations with experts
- Presentations with video recording available online
- Field trips to affected areas
- Informal information sessions with experts
- Flyers
- Other

4. **How effective do you feel large public meetings / lectures would be for informing the** general public?
- Scale - 1 (ineffective) – 10 (Very Effective)

5. **What are the best ways of raising awareness about sea level rise and the associated issues?**

- Local Celebrities
- Stories from residents in affected areas – Testimonies
- Information centers/boards/posters around the city
- Radio
- TV
- Newspapers
- Social Networking sites (eg. Facebook)
- Other

6. **When should we begin to adapt to SLR?**

- Now (Preventing a damaging event)
- AFTER a severe flood or storm which causes severe damage (reactive)
- Following the breaching of certain thresholds eg. Erosion rates, economic reasons (eg. Insurance increases)
- Other

7. **What type of events would you participate in with regard to adaption planning for sea level rise?**

- Large public meetings
- Small Meetings
- Online surveys
- Meetings with large organisations
- Meetings based around particular interests, eg. Residents, business, recreation, environment
- Other

8. **What are important factors/networks that need to be established before Community Engagement?**

- Communication between residents –at street level and neighbourhood level
- Representative groups such as residents associations
- Council – Community interaction
- Other

9. **Do you think that these factors/networks are available at the moment on the necessary scale? – If no, what could encourage this?**

- Yes
- No
- Comment

10. **How can we ensure that people remain engaged in a long term process?**

11. **How can we obtain the views of the wider public that aren't involved with representative groups such as residents associations?**

12. **How can we engage the wider public that may not be directly affected by the hazards/decisions made? Eg. Residents of other parts of the city.**